

# ADDRESSING RISK MANAGEMENT IN NON-DEVELOPMENTAL ITEMS ACQUISITION PROGRAMS

*Michael R. Steves*

Non-developmental Items (NDI) acquisition programs are enjoying popular support as faster, cheaper alternatives to new start research and development programs. Unfortunately, DoD policy on risk management in NDI programs is lacking. In the new, less-restrictive DoD Directive 5000.1 Acquisition Policy and DoD Regulation 5000.2-R, the program manager (PM) is expected to tailor risk management practices to the needs of the program. Tailoring DoD risk management policy to support NDI program management leaves the PM too much guesswork. An NDI PM's risk management program cannot reasonably benefit from DoD risk management guidance, procedures, and tools because he or she is focused on new development program risks and risk management practices. Missing is any explicit consideration of unique NDI risks and risk management requirements. NDI PMs need more structured policy and instruction regarding NDI risk management for the streamlined, accelerated NDI acquisition environment. A lesson that we have learned is that we need a published risk management plan as the source of NDI risk management program decisions and actions. This article makes specific recommendations for including NDI risk management in DoD policy.

**T**oday's era of defense downsizing has the military services scrambling to protect research, development, and acquisition (RD&A) funds and to preserve their acquisition programs. Quality of life issues, training and readiness, and peacekeeping missions continue to draw funds away from RD&A programs and modernization. The armed services and their acquisition program managers are challenged to justify lengthy and costly new research and development programs

when commercial or nondevelopmental solutions exist. Risky acquisition strategies and mistakes in new research and development acquisitions have become harder to defend. A new program's risks will demand close management to prevent unanticipated or poorly planned-for events from exposing the program to funding cuts or cancellation.

To the rescue, or so many expect, comes the Non-developmental Item (NDI). NDI system acquisitions give PMs and the gov-

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ernment rapid, lower cost access to advanced technology. NDI acquisition strategies offer the promise of risk mitigation and a lower risk means of meeting the armed services' urgent mission needs and operational requirements. NDI program management is not, however, without risk. An NDI program manager must tailor the program's risk management to the unique risks and uncertainties in NDI system acquisitions.<sup>1</sup> NDI risk management demands more than tailoring. Problems arise with NDI risk management because NDI risks and necessary risk management processes are not well understood or described in Department of Defense (DoD) policy. NDI risk management demands policy, framework, and tools to assist the PM. An NDI acquisition's purpose is to simplify and accelerate the acquisition process to meet the program's, and ultimately, our soldier's needs. Successful NDI acquisition programs would benefit from a more clearly mapped risk management policy structure, rather than broad expectations of tailoring, to fulfill their promise of simple, rapid, and reduced-risk acquisitions. The simple, fast, cheaper route to NDI risk management success requires good directions and signposts advising PMs of risks and precautionary measures.

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<sup>1</sup> Tailoring is a practice that means modifying the acquisition process to reduce the time required to meet user (soldier) needs. Tailoring is expected to be done according to common sense, effective business practice, laws, regulations, and a program's anticipated fielding date (DoD Directive 5000.1, 1996). The concept of tailoring risk management is considered valuable by DoD as part of the program manager's authority.

## **RISK MANAGEMENT AND NON-DEVELOPMENTAL ITEM OVERVIEW**

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DoD's risk management concepts are consistent with those in industry. DoD guides on risk management are similar to the Program Management Institute's (PMI) body of knowledge on risk management. The PMI approach reflects the general body of knowledge on risk and risk management that may be found in business and industry today.

### **RISK DEFINITION**

*Webster's 3d International Dictionary* defines risk as "the possibility of loss, injury, disadvantage, or destruction; someone or something that creates or suggests a hazard or adverse chance; the product of the amount that may be lost and that probability of losing it (p. 1961). DoD Directive (DoDD) 5000.1 and DoD Regulation (DoDR) 5000.2-R do not define risk to coincide with discussions of risk management or risk reduction. Risk is often characterized by type: cost, schedule, technical performance, supportability, and programmatic risk (DSMC, 1989).

These five types of risk interact to affect a program's overall performance.

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Their basis is in the five-phase, four-milestone, full-scale development acquisition cycle found in the now-rescinded DoD Instruction 5000.2.

### **RISK MANAGEMENT**

The DoDD 5000.1 (1996, p.4) defines risk management as an approach that “encompasses risk identification, mitigation, and continuous tracking, and control procedures that feed back through the program assessment process to decision authorities.” This definition differs from the business definition in that it stresses a systematic approach rather than “art and science.” Risk management identifies and evaluates the program areas vulnerable to high levels of uncertainty. Its purpose is to provide a means of comparing risk management performance to a standard and of tracking risk-related information. By doing so, DoDR 5000.2-R adds that risk management becomes an essential element of a program’s acquisition strategy (1996, Part 3, p. 3).

### **THE DEFENSE RISK MANAGEMENT PROCESS**

A PM’s risk management process should set objectives and continually assess the program for obstacles that hinder accomplishment of those objectives. It allows the PM to formulate alternative courses of action and to make rational decisions on monitoring and controlling the outcomes or consequences of program events.

Upon identification of a program’s risks, a four-part process begins. The four defense risk management process components are planning, assessment, analysis, and handling. Once these components are implemented, the risk mitigation effort is underway. Risk mitigation is the combination of risk handling and risk controls. DoDD 5000.1 notes that technology demonstrations, prototyping, and test and evaluation are the available techniques to assess and handle risk. The PM should document the risk management program, process, and techniques. Publication of a risk management plan (RMP) is one means of accomplishing this.

### **NON-DEVELOPMENTAL ITEMS**

An NDI is a previously developed federal, state, local, or foreign government item with little or no development effort required (5000.2-R, Part 3, p.5). NDI acquisition strategies look to governments or commercial vendors as sources for a developed and available item. DoDD 5000.1 encourages the armed services to use the most cost-effective materiel solution over a system’s life cycle. The first choice among materiel alternatives after buying commercial off-the-shelf items is to procure or modify previously developed U.S. military or Allied systems or equipment (p. 6).

The armed services in the past have defined NDIs more specifically.<sup>2</sup> The Army

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<sup>2</sup> Confusion sometimes results from the attempt to distinguish an NDI from a commercial off-the-shelf (COTS) item. A COTS item does not make up a portion of NDIs. COTS items are commercial hardware or software items not yet modified by the government, items that are in the commercial inventory or production, that have proven their performance in a similar environment, that have an existing support structure, have an internal support structure, have an internal configuration that flows with commercial changes, and generally are integrated with other hardware and software items to become part of a system or subsystem capability. An NDI therefore might be described as a noncommercial off-the-shelf item.

version distinguishes NDI in three categories (Quindlen, 1989):

1. Category A (basic NDI). No modifications are required.
2. Category B (NDI adaptation). This category is sometimes referred to as “Ruggedized NDI.”
3. Category C (NDI integration). This category is sometimes referred to as “Militarized NDI.”

#### **ADVANTAGES AND DISADVANTAGES OF NDIs**

NDIs are considered a means of mitigating program cost and schedule risks. Risk mitigation can be implemented in a shortened or streamlined Program Definition and Risk Reduction Phase and Engineering and Manufacturing Development (EMD) Phase of the acquisition process. The advantages of NDIs, according to the Government Accounting Office (GAO), include shorter acquisition time, reduced cost, proven technical performance or mature technologies, and simplified contracting procedures involved in procuring established products. Yet NDI acquisitions do not eliminate risk they may actually introduce new, significant risks. These risks will be examined shortly.

An effective NDI acquisition program must fulfill the service’s needs by fielding mature technology that contributes to combat readiness while satisfying the user’s expectations. The three features that attract substantial DoD and Congressional support for NDI or commercial alternatives but challenge the PM are:

1. Meeting user requirements based on available government or commercial market solutions.
2. Preparing minimum but not objective (“gold-plated”) user requirements to support lower program costs and rapid system fielding.
3. Providing DoD with greater access to state-of-the-art technology to keep pace with changing threats, emerging technologies, and innovative combat systems.

The danger to NDI programs and their effective risk management is in forcing NDI solutions on PMs and their customers (the user community), when those NDIs neither meet requirements nor transition effectively make the transition from current government or commercial applications to battlefield environments. Broadly stated DoD risk management policy and guidelines then contribute to disadvantages as well as advantages of buying NDIs.

The disadvantages of NDIs and NDI acquisition strategies stem from the new start research and development program paradigms in the acquisition community. A developmental item PM traditionally faces cost, schedule, performance, supportability, and programmatic risks; NDI program risks are often unique. In reviewing the literature, I have found that the following areas make up the most pressing potential risks facing NDI program objectives: a) requirements, b) NDI acquisition management environment, c) performance specifications and nongovernment standards (S&S), d) test and evaluation (T&E), and e) integrated logistics support (ILS).

The NDI PM’s principal disadvantage is a lack of both DoD policy attention paid to the above NDI program risks and the

procedures and tools to manage them. This void in NDI-specific risk management guidance leaves the PM without current references for structuring a risk management program or publishing an RMP. Meanwhile, the pressure to use NDI solutions at the expense of a service's original needs and requirements may yield fielded items that aren't compatible or interoperable with the intended operational environment or battlefield systems.

## THE DIVERGENT PATHS

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The crux of the NDI risk management issue is that the paths of risk management policy and NDI policy do not cross. DoD policy emphasizes both risk management and NDI but in differing directions. Risk management policy in the DoD 5000 series keys on developmental items and acquisition strategies. This is demonstrated in the traditional cost, schedule, and performance risk orientation of current policy. NDI policy focuses on risk mitigation gained through use of established government sources of supply. Cost and schedule benefits aside, no description or instruction for NDI program risk management appears in the DoD 5000 series. The 5000.1 and 5000.2-R policy voids exist within the expectation that the program manager will “tailor” (overlap, combine, or omit) risk management requirements to an NDI acquisition strategy.

NDI acquisitions streamline acquisition policy and particularly, risk management policy, and result in tradeoffs between program objectives. While NDI programs may mitigate risks in cost and schedule, technical performance, supportability, and programmatic risks may be heightened by

the NDI-specific risks listed earlier. The consequences of NDI-specific risk events in these areas can have tremendous affect on cost and schedule in the long run.

NDI PMs currently conduct risk identification, planning, analysis, assessment, handling, and documentation according to the 5000.1 and 5000.2-R. In doing so, the PM applies *developmental* acquisition risk management policy and procedures focusing on traditional developmental program risks to *nondevelopmental* systems. The point is that many NDI acquisition PMs must “think on the move” without explicit directions or road maps. Without DoD or service-specific NDI risk management policy, instructions, templates, or unofficial emphasis in Defense Systems Management College (DSMC) risk management publications or instruction, PMs will continue to rely on gut feelings, developmental lessons learned, and incomplete references. NDI risk management planning can be second-guessed since no official references can be cited to justify risk management decisions. Lack of published DoD RMP formats increases this risk.

**“The crux of the NDI risk management issue is that the paths of risk management policy and NDI policy do not cross.”**

There are reasons for this policy void. The risks in NDI acquisition are not as widely described or documented as the benefits. The absence of documentation and description is due to lack of familiarity by PMs, users, and DoD overall with the NDI acquisition risks in competitive, commercial (defense- and nondefense-related) industries. These industry sources provide DoD with a growing number of

NDI systems not initially developed to meet a specified armed service requirement. The defense acquisition community's unfamiliarity with NDI risks and risk management means a lack of understanding with commercial risk management practices and standards. Without formal risk management policy and guideline initiatives by DoD acquisition participants, definitive policy and instruction has insufficient support or momentum to be officially implemented.

## **MERGING THE TWO PATHS**

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The challenge of DoD is to bridge the gap between developmental acquisition risk management policy and practices and those that apply specifically to NDI risks. Effective application of NDI-based risk management policy and practice can save NDI and possibly COTS PMs valuable time, money, and manpower resources while assisting them in effectively meeting program goals and objectives.

### **PROPOSED DoD POLICY REVISIONS**

**DoDD 5000.1 Risk Management Policy.** DoDD 5000.1 contains five areas which could be revised to make its risk management guidance suitable for NDI PMs. The first area is the risk management subsection of Part 1 (p. 4). It presently states:

[Program managers] and other acquisition managers shall continually assess program risks. Risks must be well understood, and risk management approaches developed, before decision authorities can authorize a program to proceed into the next

phase of the acquisition process. Risk management encompasses identification, mitigation and continuous tracking, and control procedures that feed back through the program assessment process to decision authorities.

This guidance lacks reference to a definitive risk management planning structure. Currently, NDI PMs are expected to tailor the DoDD 5000.1 risk management guidance to their NDI systems acquisitions. The following could be added for more structural content to both NDI and developmental risk management planning:

Each milestone decision point will include a review of the updated risk management plan (RMP) and measures taken to identify, assess, analyze, handle, and document program risks. Continuity will be maintained between the RMP and discussions of program risks in the Integrated Program Summary, Acquisition Plan, Systems Engineering Master Plan, Test and Evaluation Master Plan, and Integrated Logistics Support Plan.

The RMP could be modeled after DSMC Risk Management or DSMC *Systems Engineering Management Guides*' RMP formats and tailored to the requirements of the individual program. It would require the "teaming" of the user and the PM to integrate a risk management focus that supports operational need and requirements development. It could then be monitored through the Integrated Product Team Process.

The second area is the Event-Oriented Management subsection of Part 2 (p. 6),

which describes “a rigorous, event-oriented management process that emphasizes effective acquisition planning, improved and continuous communications with users, and prudent risk management by both the government and industry.” This statement overlooks risk areas, especially those in NDI programs: requirements, NDI acquisition management, T&E, S&S, and ILS.

The DoD 4245.7-M, published in 1985, described the areas of risk that jeopardize achievement of successful cost, schedule, and performance objectives. It did not describe NDI risks acting as cost, schedule, or performance drivers. The Hierarchy of Materiel Alternatives subsection immediately following Event-Oriented Management currently doesn’t refer to them either. Event-oriented managers are empowered with the authority to make trade offs between performance and schedule for the sake of cost objectives. The authority to trade off performance or schedule to control program cost risks can imply the acceptance of force readiness and doctrinal capability gaps. If no operationally effective replacement systems exist, then such trade offs can have significant impact on force training and combat effectiveness.

The following could be added to reflect NDI risks:

NDI programs shall examine and track the effects of requirements, NDI acquisition management, Test and Evaluation, Specifications and Standards, and Integrated Logistics Support risks on cost, schedule, and performance objectives. Measures of performance for risk handling shall be proposed in the RMP concerning

these risks. Trade-offs shall be considered primarily when current systems exist to sustain the force until the NDI system is fielded.

The third area of interest is a combined look at the Test and Evaluation and Modeling and Simulation subsections in Part 2 (p. 6). The Risk Assessment and Management subsection refers to test and evaluation. Integrated testing

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and evaluation, including modeling and simulation, is used to identify areas of technical risk, to “assess attainment of technical performance parameters... to reduce the time, resources, and risks of the acquisition process” (p. 6). The Risk Assessment and Management subsection itself reads: “To assess and manage risk, [program managers] and other acquisition managers shall use a variety of techniques, including technology demonstrations, prototyping, and test and evaluation.

NDI acquisition strategies often include accelerated and streamlined (depending on the quantity and quality of contractor test programs and data) testing and evaluation processes or simply contractor test and evaluation data reviews. The risks in NDI acquisitions are testing too little, too much, and testing to the wrong or modified requirements using contractor test and evaluation inputs. The following could be included to address these concerns:

NDI market analysis of proposed designs, NDI test and evaluation pro-



grams, and NDI performance specifications shall carefully consider trade offs in test and evaluation for the sake of short-term cost and schedule objectives. Such trade offs introduce risks to NDI life-cycle costs and support. NDI contractors' test and evaluation data shall be screened and validated independently by the operational test and evaluation community.

The fourth area considers contractor responsibilities again from the Risk Assessment and Management subsection. Previously, solicitation documents required contractors to identify risks and specify plans to assess and eliminate risks or reduce them to acceptable levels. Now, DoDD 5000.1 directs that (p. 4) "To ensure an equitable and sensible allocation of risk between government and industry, [program managers] and other acquisition managers shall develop a contracting approach appropriate to the type of system being acquired."

The shortfall in this guidance on contractor risk management is the lack of parallelism between the NDI PM's RMP and

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requirements and those of the contractor. The NDI risk management efforts should emphasize teaming and risk-sharing to relieve the burden of risk management

from resting primarily on the government. This is particularly true with the accelerated nature of NDI acquisitions. Risk re-

sponsibility in NDI programs should rest in large part with the contractor, given the supposedly mature system being offered. The following could be added: "Contractor RMPs shall be specified in solicitations as a deliverable. These shall be consistent with DoD program managers' RMPs. Risk sharing shall be emphasized in contracts and monitored by the DoD-contractor team through integrated product teams (IPTs).

The fifth area combines its focus on the Tailoring, IPT, and Management Control subsections in Part 2 (p. 8). The guidance makes no mention of NDI risks even as materiel alternatives are repeatedly called for prior to beginning a new major defense acquisition program. Risk plans, assessments, and controls, which are subject to tailoring, should be comprehensive in nature and include the full spectrum of risks expected for a NDI program. Tailoring, IPTs, and management control could address the five NDI-specific risk areas by directing that an RMP be prepared and reviewed at each milestone.

The DoDD 5000.1 risk management policy revisions are an important first step. Policy must clearly state the risk management requirements and guidelines as they specifically affect a NDI PM's risk management program. These changes will provide impetus for revisions to DoDR 5000.2-R, which will be examined next.

**DoDR 5000.2-R Risk Management Policy and Procedures.** The NDI program managers need more definitive and explicit policy and procedures in DoDR 5000.2-R pertaining to their risk management programs. The 5000.2-R, even with its increased commercial and nondevelopmental item emphasis, neglects NDI risk

management. With increasing competition for shrinking DoD RD&A budgets and resources, DoD and Congressional risk tolerance will decline, pressure will intensify to manage programs according to sound business practices, and “safer” acquisitions will attract more support. *In these circumstances, explicit NDI risk management instruction will become critical to NDI program management.*

Two parts of DoDR 5000.2-R could better serve NDI PMs with more explicit discussion of NDI risks and risk management implementation procedures. The first is Part 3. The regulation encourages acquisition program stakeholders to examine the full range of mature or developing materiel alternatives before initiating a new program. Emphasis is placed on cost, schedule, performance, interoperability, trade offs, and risk management. The use of IPTs and tailoring are introduced as additional major program considerations for each milestone decision point. A program’s decision authority, documentation, and milestone reviews will be subject to the program size, complexity, and risk, as well as the flexibility intended through IPTs and tailoring.

As part of the original DoD Instruction 5000.2, risk assessment formats were provided in the now-rescinded DoD 5000.2-M. The format description did more to encourage tailoring than to depict a specific risk assessment format; it provided little to support outlining an NDI risk assessment, much less an RMP. The current 5000.2-R provides no formats. PMs are given wider latitude to prepare their own risk assessments and risk management plans and programs. Any current format would be helpful if it were to refer to the the old DoD 4245.7-M risk areas.

Additionally, with NDI and streamlining initiatives more common today, *more* detail is required than currently described or provided in those sets of templates in the supportability and programmatic sources of risk as well as the NDI-specific Requirements, S&S, T&E, ILS, and NDI program management environment risk areas.

In the 5000.2-R, milestone 0 concentrates on materiel alternatives to a new major defense acquisition program. The milestone I, II, and III reviews, however, repeatedly focus on acquisition program baselines (APB), acquisition strategies, and exit criteria. The APB content, especially pertain-

ing to cost, is subject to refinement during each program phase. A refined APB encourages risk reduction

efforts. Risk reduction efforts are based on careful risk assessments, which are a basis for overall cost parameters and realistic cost estimates. But no format is provided in the regulation. No tie-in is made to NDI APBs or NDI risk assessments and unique risk reduction requirements. Program acquisition strategies each have risk management as an essential element. Again, while NDI programs will have their own acquisition strategies and risk management programs, no format or tools are offered. The exit criteria or “gates” that the system must pass to meet program goals and enter a new acquisition phase are selected to track progress in important technical, schedule, or management risk areas. No explicit mention is made of NDI, Requirements, S&S,

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T&E, ILS, and NDI program management risk areas, or their influence on exit criteria.

The second part of DoDR 5000.2-R procedures concerns Part 1. The milestone decision point reviews discussed in DoDR 5000.2-R do not cite one central document as the reference for a program's risk data or the planned risk management program. Part 1 points to Phase I, Program Definition and Risk Reduction, as the period when prototyping, technical demonstrations, and early operational assessments are used to assess and reduce risk. The targeted risks are technical, manufacturing, and support risks that must be controlled before the next milestone decision point. The regulation implies that these risk reduction techniques are done primarily in Phase I. In addition to emphasizing risk management as a program function done *throughout* the acquisition life cycle, reference should be made to an RMP as the source of documented program risks, risk assessments and analysis, risk reduction measures, rationale, and assumptions in published risk ratings. This could be more effective than flipping between the Integrated Program Summary, Acquisition Plan, T&E Master Plan, and Systems Engineering Master Plan.

The regulation policy should explicitly cite the NDI streamlined acquisition cycle, and the parts of DoDR 5000.2-R in which detailed descriptions of NDI risks and risk management actions appear. For example, part 3.3.2 of the 5000.2-R could feature the NDI requirements, test and evaluation, integrated logistics support, performance specifications and commercial standards, and NDI acquisition management risks. Risks, possible risk ratings and assessment considerations, and initial risk handling

options could be listed as program deliverables at milestone reviews. NDI risks and risk management could then be distinguished from the developmental features in the DoDR 5000.2-R.

**Risk Management Templates.** Below are areas for consideration using DoD's former DoD 4245.7-M risk management tool, the risk template. This would clarify DoD's position on NDI risks and provide recommended risk management measures to the benefit of NDI PMs, their programs, and their customers.

*Requirements Risk Template*  
Areas of Risk:

1. Operational and design requirements that are ill-defined or overlook NDI alternatives.
2. Inadequate market analysis that contributes to "mix and match technologies" being required rather than verification of what technology actually exists.
3. Trade offs in threshold and objective performance requirements that fail to meet the user's stated need. Improperly defining the proposed system's prospective sources (commercial, modified commercial, or NDI) and required future design modifications.

Outline for Reducing Risk:

1. Insert NDI market analysis into the acquisition cycle as part of Phase 0, Concept Exploration and Development.

2. Use the IPT structure to better screen and develop requirements.

Timeline: All phases.

*Performance Specifications and Non-government Standards Risk Template*  
Areas of Risk:

1. Technical performance in commercial applications as specified in commercial item descriptions (CIDs) may not equate to or explicitly meet technical performance in military applications as stated in MIL-SPECS and MIL-STDS after an NDI acquisition strategy is already approved.
2. Performance specifications and standards based on form, fit, and function (that allow contractors to design solutions) instead of the “how-to” MIL-SPECS and MIL-STDS used in design and manufacturing may encounter workforce resistance or complacency.
3. Inadequate market analysis leads to acceptance of products having insufficient or undocumented technical data or CIDs with which to re-compete the procurement for future buys.

**Note:** The DoDR 5000.2-R states that the PM “shall structure the acquisition strategy to promote sufficient program stability to encourage industry to invest, plan, and bear risks ... program acquisition strategies must analyze industrial capability to design, develop, produce, support, and

restart a program... analysis will identify DoD investments needed to create any new industrial capabilities and the risk of industry not providing the manufacturing capabilities at the planned cost and schedule” (Part 3, p. 5).

Outline for Reducing Risks:

1. Specify in solicitations that CIDs for meeting user requirements are a deliverable.
2. Evaluate the CIDs against MIL-SPECS to verify their adequacy for design and development.
3. Train and educate the acquisition workforce in CIDs and commercial specifications.

Timeline: All phases.

*NDI Acquisition Management Risk Template*  
Areas of Risk:

1. Despite streamlining, paperwork requirements, pricing data, accounting requirements, and continuous audits of NDI programs stifle the cost and schedule objectives laid out in the acquisition strategy.
2. Traditional developmental program paradigms and developmental program mindsets continue to reflect a cultural resistance toward implementing timely and cost-effective NDI acquisition strategies.
3. Lack of PM-contractor and PM-user teaming on risk responsibility and

risk sharing hampers flexibility in risk management efforts.

4. Programmatic micro-management by stakeholders defeats the benefits of an NDI acquisition strategy.

**Note:** DoDR 5000.2-R discusses cost management incentives, stating “risk reduction through the use of mature processes shall be a significant factor in source selection (Part 3, p.7) ... and “the acquisition strategy shall discuss types of risk assessment, reasonable risk sharing by government and contractor(s)” plus the schedule risk of using government furnished equipment or government furnished information (Part 3, p. 8).

Outline for Reducing Risks:

1. Require RMPs as a contractor deliverable.
2. Require workforce training and education in NDI through DSMC.

Timeline: All phases.

*Test and Evaluation Risk Template*

Areas of Risk:

1. Requirements are not stable, realistic, or well-understood by designers, developers, testers, or managers.
2. Overtesting conducted despite the presence of satisfactory contractor test and evaluation data package.
3. Developmental and technical testing costs are saved but operational

testing for operational effectiveness and suitability may involve conditions not grasped by contractor testing program. These incomplete tests and data may be overlooked or unquestioned in the accelerated NDI acquisition cycle and corresponding accelerated NDI testing program.

Outline for Reducing Risks:

1. Test and evaluation data reviews of contractor commercial testing program and results.
2. Demonstrations of the contractor's testing process.
3. Modeling and simulation anchored in realistic, integrated T&E with combined DT/OT, and live fire T&E. Examples are TECOM's Simulation and Modeling Anchored in Real Testing (SMART) program and Virtual Proving Ground initiatives and its Combat Synthetic Test and Training Assessment Range (STTAR) capability used at a recent National Training Center rotation by the 1st CAV Division.

Timeline: All phases.

*Integrated Logistics Support Risk Template*

Areas of Risk:

1. Technical data packages may be unavailable or incomplete, which creates instability of spares and parts access.

2. Competitive re-procurements of parts may not contain proper incentives to attract spares and parts vendors.
3. ILS and a system life-cycle focus may be overlooked during the requirements development stage.
4. Use of military standard and non-standard parts creates multiple parts and spares lines.
5. Depot and repair levels may not be defined in terms of operational environments.

#### Outline for Reducing Risks:

1. Define ILS requirements when deciding what category of NDI the acquisition strategy involves.
2. Conduct market analysis of contractor ILS capabilities, ILS testing, and support demonstrations in the intended operational environment and conditions.<sup>3</sup>
3. Specify training packages and publications as a contractor deliverable.

Timeline: All phases.

These revisions provide guidance to NDI PMs. The template diagram, area of risk, risk reduction outline, and a life cycle

timeline for managing these risks should be included. Clarifying risk management policy and upgrading NDI risk management templates can streamline the risk management process by saving time, manpower, and the resources required to staff a risk management program. The NDI interpretation of developmental item templates would become unnecessary.

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## CONCLUSIONS

The practice of risk management does not benefit from “cookbook” solutions. If such solutions existed for developmental acquisition programs, there are very few, if any, for NDI acquisition programs. This is the NDI PM’s dilemma. The NDI PMs must adhere to DoDD 5000.1 and DoDR 5000.2-R risk management policies in their programs, but the material is vague or must be tailored to support NDI program needs. The situation leaves the NDI PM driving a risk management program without the benefit of signposts or road maps.

NDI PMs continuously manage risk as part of today’s streamlined and tailored NDI acquisition environment. They should expect and receive succinct, explicit policy and guidelines to help them meet their risk management and program management goals and objectives. DoDD 5000.1 could better serve the NDI PMs with risk management language directed to their specific type of programs and ac-

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<sup>3</sup> Options the program manager can consider include those posed in DSMC’s NDI acquisition publication

1. Buy commercial upgrades as they evolve and become available.
2. Make a one-time mass spares purchase to sustain the duration of the system’s life cycle.
3. Buy the technical data package to solicit sources of supply that coincide with the end of original production and support by the original contractor.

quisition strategies. DoDR 5000.2-R could provide NDI PMs with both better risk management guidance and implementation procedures with NDI-based instructions, formats (once found in DoD 5000.2-M), and tools (once found in DoD 4245.7-M risk templates and risk management plan).

The NDI program manager's challenges and program risks in the late 1990s are not adequately reflected in DoD's mid-

1980s risk management policy, procedures, or tools. Risk management will receive more, not less, emphasis as an explicit management function. NDI and NDI acquisition strategies will continue to grow in popular support as DoD RD&A budgets are "downsized". Modernization at minimum risk, therefore, will require properly marked signposts and a good road map. It is time for DoD to print and distribute those signs and maps.

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